

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Withdrawn – currently amended): A process of making a human-like glycoprotein in a lower eukaryotic host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising the step of introducing into the cell an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 2 (Withdrawn – currently amended): A process of making a human-like glycoprotein in a lower eukaryotic host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising the step of expressing in the cell an *N*-acetylglucosaminyltransferase III (GnT III) catalytic) activity.

Claim 3 (Withdrawn – currently amended): A process of making a human-like glycoprotein in a lower eukaryotic host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising the step of expressing in the cell one or more enzymatic activities that produce N-glycans comprising GlcNAc<sub>3</sub>Man<sub>3</sub>GlcNAc<sub>2</sub>, GlcNAc<sub>2</sub>Man<sub>3</sub>GlcNAc<sub>2</sub> or GlcNAc<sub>2</sub>Man<sub>5</sub>GlcNAc<sub>2</sub> bisected structures.

Claim 4 (Withdrawn – currently amended): The process of claims 1 or 2, wherein the *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity produces a bisected glycan.

Claim 5 (Withdrawn): The process of claims 1 or 2, wherein the glycoprotein comprises a bisected glycan.

Claim 6 (Withdrawn – currently amended): The process of claims 1 or 2, wherein the activity is substantially intracellular.

Claim 7 (Withdrawn): The process of claims 1, 2, or 3, further comprising the step of isolating the glycoprotein from the host cell.

Claim 8 (Withdrawn): The process of claims 1, 2, or 3, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pipperi*, *Pichia stiptis*, *Pichia methanolica*, *Pichia* sp., *Saccharomyces cerevisiae*, *Saccharomyces* sp., *Hansenula polymorpha*, *Kluyveromyces* sp., *Candida albicans*, *Aspergillus nidulans*, *Aspergillus niger*, *Aspergillus oryzae*, *Trichoderma reesei*, *Chrysosporium lucknowense*, *Fusarium* sp., *Fusarium gramineum*, *Fusarium venenatum*, and *Neurospora crassa*.

Claim 9 (Withdrawn): The process of claim 8, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pipperi*, *Pichia stiptis*, *Pichia methanolica*, and *Pichia* sp..

Claim 10 (Withdrawn): The process of claim 9, wherein the host cell is *Pichia pastoris*.

Claim 11 (Withdrawn): The process of claims 1, 2, or 3, wherein the glycoprotein is a therapeutic protein.

Claim 12 (Withdrawn): The process of claim 11, wherein the therapeutic protein is selected from the group consisting of erythropoietin, cytokines, coagulation factors, soluble IgE receptor  $\alpha$ -chain, IgG, IgG fragments, IgM, interleukins, urokinase, chymase, urea trypsin inhibitor, IGF-binding protein, epidermal growth factor, growth hormone-releasing factor, annexin V fusion protein, angiostatin, vascular endothelial growth factor-2, myeloid progenitor inhibitory factor-1, osteoprotegerin,  $\alpha$ -1-antitrypsin,  $\alpha$ -feto protein, and DNase II.

Claim 13 (Currently amended): A lower eukaryotic host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 14 (Currently amended): A lower eukaryotic host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising an *N*-

acetylglucosaminyltransferase II (GnT II) catalytic activity and an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 15 (Currently amended): The host cell of claim 13 or 14, wherein the catalytic activity is substantially intracellular.

Claim 16 (Currently amended): The host cell of claim 13 or 14, wherein the cell produces *N*-glycans comprising GlcNAcMan<sub>3</sub>GlcNAc<sub>2</sub> structures that are capable of reacting with GnTIII the GnT III catalytic activity.

Claim 17 (Currently amended): The host cell of claim 13 or 14, wherein the *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity produces a bisected glycan.

Claims 18-21 (Cancelled)

Claim 22 (Currently amended): The host cell of ~~claims 13, 14, 18, or 21~~ claim 13 or 14, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pijperi*, *Pichia stiptis*, *Pichia methanolica*, *Pichia* sp., *Saccharomyces cerevisiae*, *Saccharomyces* sp., *Hansenula polymorpha*, *Kluyveromyces* sp., *Candida albicans*, *Aspergillus nidulans*, *Aspergillus niger*, *Aspergillus oryzae*, *Trichoderma reesei*, *Chrysosporium lucknowense*, *Fusarium* sp., *Fusarium gramineum*, *Fusarium venenatum*, and *Neurospora crassa*.

Claim 23 (Original): The host cell of claim 22, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pijperi*, *Pichia stiptis*, *Pichia methanolica*, and *Pichia* sp..

Claim 24 (Original): The host cell of claim 23, wherein the host cell is *Pichia pastoris*.

Claims 25-31 (Cancelled)

Claim 32 (Currently amended): A lower eukaryotic host cell engineered to produce glycoproteins having hybrid N-glycans comprising a GnTIII an N-acetylglucosaminyltransferase III (GnT III) catalytic activity and a mannosidase II catalytic activity.

Claims 33-34 (Cancelled)

Claim 35 (Currently amended) The host cell of claim 32, further comprising an N-acetylglucosaminyltransferase I activity and an N-acetylglucosaminyltransferase II catalytic activity.

Claim 36 (Currently amended) The host cell of claims 13, 14, ~~28~~, or 32 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 37 (Currently amended) The host cell of claims 13, 14, ~~28~~, or 32 that is deficient in a the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 38 (Cancelled)

Claim 39 (Currently amended) The host cell of claims 13, 14, ~~28~~, or 32, further comprising a UDP-GlcNAc transporter.

Claims 40-54 (Cancelled)

Claim 55 (New): A unicellular or multicellular fungal host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 56 (New): The host cell of claim 55, wherein the catalytic activity is intracellular.

Claim 57 (New): The host cell of claim 55, wherein the cell produces *N*-glycans comprising GlcNAcMan<sub>3</sub>GlcNAc<sub>2</sub> structures that are capable of reacting with the GnT III catalytic activity.

Claim 58 (New): The host cell of claim 55, wherein the *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity produces a bisected glycan.

Claim 59 (New): The host cell of claim 55, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pijperi*, *Pichia stiptis*, *Pichia methanolica*, *Pichia* sp., *Saccharomyces cerevisiae*, *Saccharomyces* sp., *Hansenula polymorpha*, *Kluyveromyces* sp., *Candida albicans*, *Aspergillus nidulans*, *Aspergillus niger*, *Aspergillus oryzae*, *Trichoderma reesei*, *Chrysosporium lucknowense*, *Fusarium* sp., *Fusarium gramineum*, *Fusarium venenatum*, and *Neurospora crassa*.

Claim 60 (New): A unicellular or multicellular fungal host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising an *N*-acetylglucosaminyltransferase II (GnT II) catalytic activity and an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 61 (New): The host cell of claim 60, wherein the catalytic activity is intracellular.

Claim 62 (New): The host cell of claim 60, wherein the cell produces *N*-glycans comprising GlcNAcMan<sub>3</sub>GlcNAc<sub>2</sub> structures that are capable of reacting with the GnT III catalytic activity.

Claim 63 (New): The host cell of claim 60, wherein the *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity produces a bisected glycan.

Claim 64 (New): The host cell of claim 60, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pijperi*, *Pichia stiptis*, *Pichia methanolica*, *Pichia* sp., *Saccharomyces cerevisiae*, *Saccharomyces* sp., *Hansenula polymorpha*, *Kluyveromyces* sp., *Candida albicans*, *Aspergillus nidulans*, *Aspergillus niger*, *Aspergillus oryzae*, *Trichoderma reesei*, *Chrysosporium lucknowense*, *Fusarium* sp., *Fusarium gramineum*, *Fusarium venenatum*, and *Neurospora crassa*.

Claim 65 (New): A unicellular or multicellular host cell engineered to produce glycoproteins having hybrid N-glycans comprising an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity and a mannosidase II catalytic activity.

Claim 66 (New) The host cell of claim 65, further comprising an *N*-acetylglucosaminyltransferase II catalytic activity.

Claim 67 (New) The host cell of claim 55 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 68 (New) The host cell of claim 60 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 69 (New) The host cell of claim 65 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 70 (New) The host cell of claim 55 that is deficient in the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 71 (New) The host cell of claim 60 that is deficient in the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 72 (New) The host cell of claim 65 that is deficient in the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 73 (New) The host cell of claim 55, further comprising a UDP-GlcNAc transporter.

Claim 74 (New) The host cell of claim 60, further comprising a UDP-GlcNAc transporter.

Claim 75 (New) The host cell of claim 65, further comprising a UDP-GlcNAc transporter.

Claim 76 (New): A yeast host cell engineered to produce glycoproteins having hybrid or complex N-glycans comprising an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 77 (New): The host cell of claim 76, wherein the catalytic activity is intracellular.

Claim 78 (New): The host cell of claim 76, wherein the cell produces *N*-glycans comprising GlcNAcMan<sub>3</sub>GlcNAc<sub>2</sub> structures that are capable of reacting with the GnT III catalytic activity.

Claim 79 (New): The host cell of claim 76, wherein the *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity produces a bisected glycan.

Claim 80 (New): The host cell of claim 76, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pijperi*, *Pichia stiptis*, *Pichia methanolica*, *Pichia* sp., *Saccharomyces cerevisiae*, *Saccharomyces* sp., *Hansenula polymorpha*, *Kluyveromyces* sp., and *Candida albicans*.

Claim 81 (New): A yeast host cell engineered to produce glycoproteins having hybrid or complex *N*-glycans comprising an *N*-acetylglucosaminyltransferase II (GnT II) catalytic activity and an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity.

Claim 82 (New): The host cell of claim 81, wherein the catalytic activity is intracellular.

Claim 83 (New): The host cell of claim 81, wherein the cell produces *N*-glycans comprising GlcNAcMan<sub>3</sub>GlcNAc<sub>2</sub> structures that are capable of reacting with the GnT III catalytic activity.

Claim 84 (New): The host cell of claim 81, wherein the *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity produces a bisected glycan.

Claim 85 (New): The host cell of claim 81, wherein the host cell is selected from the group consisting of *Pichia pastoris*, *Pichia finlandica*, *Pichia trehalophila*, *Pichia koclamae*, *Pichia membranaefaciens*, *Pichia opuntiae*, *Pichia thermotolerans*, *Pichia salictaria*, *Pichia guercuum*, *Pichia pijperi*, *Pichia stiptis*, *Pichia methanolica*, *Pichia* sp., *Saccharomyces cerevisiae*, *Saccharomyces* sp., *Hansenula polymorpha*, *Kluyveromyces* sp., and *Candida albicans*.

Claim 86 (New): A yeast host cell engineered to produce glycoproteins having hybrid N-glycans comprising an *N*-acetylglucosaminyltransferase III (GnT III) catalytic activity and a mannosidase II catalytic activity.

Claim 87 (New) The host cell of claim 86, further comprising an *N*-acetylglucosaminyltransferase II catalytic activity.

Claim 88 (New) The host cell of claim 76 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 89 (New) The host cell of claim 81 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 90 (New) The host cell of claim 86 that is deficient in an *OCH1* mannosyltransferase activity.

Claim 91 (New) The host cell of claim 76 that is deficient in the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 92 (New) The host cell of claim 81 that is deficient in the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 93 (New) The host cell of claim 86 that is deficient in the Dol-P-Man:Man<sub>5</sub>GlcNAc<sub>2</sub>-PP-Dol mannosyltransferase activity.

Claim 94 (New) The host cell of claim 76, further comprising a UDP-GlcNAc transporter.

Claim 95 (New) The host cell of claim 81, further comprising a UDP-GlcNAc transporter.

Claim 96 (New) The host cell of claim 86, further comprising a UDP-GlcNAc transporter.